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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/542,438	05/02/2006	Jan Schroers	51835/JWP/L471	2783
23363 7590 02/17/2009 CHRISTIE, PARKER & HALE, LLP PO BOX 7068 PASADENA, CA 91109-7068				
EXAMINER LIN, KUANG Y				
ART UNIT 1793		PAPER NUMBER		
MAIL DATE 02/17/2009		DELIVERY MODE PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/542,438

Applicant(s)

SCHROERS ET AL.

Examiner

Kuang Y. Lin

Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 January 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SG/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-18 are again rejected under 35 U.S.C. 103(a) as being unpatentable over US 7,073,560 to Kang et al. for the same reasons as set forth in the previous office action.

Namely, in col. 5, lines 10-39, Kang et al. disclose that the molten bulk solidifying amorphous alloy is pressurized and stirred to form and trap bubbles therein. The mixture of bubble and molten alloy is cooled below the glass transition temperature of the amorphous alloy to freeze the bubbles into a solidified foam structure. A cooling rate faster than the critical cooling rate of the amorphous alloy is desired in order to ensure the formation of amorphous atomic structure substantially throughout the structure. Since the cooling rate is faster than the

critical cooling rate of the amorphous alloy, it is apparent that the alloy is cooled below the nose of the crystallization curve.

In col. 5, lines 40-49, Kang et al. further states that in one optional embodiment of the invention, the foamed structure is formed under a high ambient pressure, such as 1 kpsi to 10 kpsi or more, to form smaller size pores. Then the formed structure is cast into shape with the release of ambient pressure such that the pore size grows to the desired range. In col. 6, lines 4-14, Kang et al. states that the solidified amorphous alloy is heated about the glass transition temperature or above. At this temperature the bulk amorphous alloy with the foamed structure can be shaped into net-shape articles in a suitable molding and thermo-plastic process, while preserving its underlying foam structure substantially.

Based on the statements of col. 5, lines 32-38, col. 5, lines 40-49 and col. 6, lines 4-14, it is apparent that during the casting process described in col. 5, lines 40-49, the bulk amorphous is cooled below the nose of the crystallization curve of the alloy and above the glass transition temperature of the alloy.

For the sake of argument, even if it is not apparent that the bulk amorphous alloy of Kang et al. is cooled below the nose of the crystallization curve of the alloy and above the glass transition temperature of the alloy during the process described in col. 5, lines 40-49, it would have been obvious to those of ordinary skill in the casting art to cool the bulk amorphous alloy below the nose of the crystallization curve of the alloy and above the glass transition temperature of the alloy during the casting process in view of the entire specification as a whole.

4. Applicant's arguments filed Jan. 30, 2009 have been fully considered but they are not persuasive.

Applicant's main argument is in that the instant application teaches that the molten alloy with bubble precursors should be cooled below the nose of the crystallization curve and above the glass transition temperature and then the bubbles allowed to be formed while Kang et al. teach that the formation of bubbles should occur at a temperature of where the alloy is in a molten state (see col. 5, lines 10-49). However, Kang et al. do teach the use of a thermoplastic temperature for forming a net-shape amorphous foam article (see col. 6, lines 4-14). Thus, it would have been obvious for those of ordinary skill in the art to manufacture a metallic foam from a bulk-solidifying amorphous alloy through a thermo-plastic process in view of prior art teaching as a whole.

5. All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kuang Y. Lin whose telephone number is 571-272-1179. The examiner can normally be reached on Monday-Friday, 10:00-6:30,.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica L. Ward can be reached on 571-272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kuang Y. Lin/
Primary Examiner, Art Unit 1793